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Bossert, J.; Roozen, F.A.

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J. Bossert
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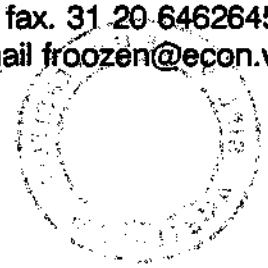
Abstract

J. Bossert
F.A. Roozen

Vrije Universiteit Amsterdam
Faculty of Economics and Econometrics
De Boelelaan 1105, room 3A-36
1081 HV Amsterdam
The Netherlands

tel. 31 20 5484316
fax. 31 20 6462645
email froozen@econ.vu.nl



On Exploring Performance Evaluation in the Netherlands: a Research Design

by: J. Bossert and F.A. Roozen

Abstract

This study set out to identify the criteria that determine the effectiveness of performance measurement and appraisal systems in Dutch firms.
An overview of recent literature on performance evaluation or related subjects let us to believe that research in performance evaluation is established form many different angles. It is often seen as a part of research in management control. Besides this, in many cases the differences between management and economic performance evaluation is stressed, which indicates two different views on the same subject. From yet another point of view, research is focussed on organisational aspects concerning performance measurement, such as centers of responsibility, causal relations, and behavioural influences on performance evaluation.
This has led us to the conclusion that fruitful further research, building on these previous studies, would need some sort of categorization or reference model in which the different angels from which the problem is approached up till now can be placed.
Therefore, the first part of our paper describes the construction of a model or framework within which the effectiveness of performance measurement and appraisal systems can be studied. In this framework special attention is paid to aspects or elements concerning the measurement of input-output relations and the behavioural aspects influencing the appraising of performance.

Given the fact that increasing complexity in input-output relations causes problems in measuring performance and the interdependent nature of all sorts of behavioural aspects causes problems in appraising performance, we were forced to pay specific attention to the research design phase of our study.
This necessity is further intensified because of the apparant absence of systematic research on performance evaluation in the Netherlands. This causes our study to be somewhat explorative in nature, which is

not satisfying if one considers the generalizability of explorative research in general. We therefor intend to follow up the explorative part of the study with a survey among a larger group of firms in order to test the validity of the outcomes of the explorative part. The research methodology and the selection of measurement instruments are discussed in the second part of the paper.

On Exploring Performance Evaluation in the Netherlands: a Research Design

1 *Introduction*

This study set out to identify the criteria that determine the effectiveness of performance measurement and appraisal systems in Dutch firms. An overview of recent literature on performance evaluation or related subjects let us to believe that research in performance evaluation is established from many different angles. It is often seen as a part of research in management control. Besides this, in many cases the differences between management and economic performance evaluation is stressed, which indicates two different views on the same subject. From yet another point of view, research is focussed on organisational aspects concerning performance measurement, such as centers of responsibility, causal relations, and behavioural influences on performance evaluation.

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2 *Research question*

In general one can identify two research streams in the literature about performance measurement and appraisal (PMA).

The first stream considers the *measures* used, while the second stream considers individual *criteria* that determine the effectiveness of the measures used. Research considering the measures used encompasses all attempts to replace or supplement the traditional, primarily financial

focussed measures with non-financial and qualitative measures. The critical success factor approach and more recently the balanced score card idea are examples of measurement models that include financial and non-financial measures as well as more qualitative aspects of performance (see e.g. Eccles, 1991; Kaplan & Norton, 1992 and 1993). Research considering the criteria determining the effectiveness of the measurement system is usually behaviorally oriented. This concerns studies into the effect of feedback, participation, etc. on the control exercised.

Because the PMA-system is part of the organisational control model, the PMA-system is said to be effective if it exercises effective control. Control is necessary if discretion and authority to make important organisational decisions is delegated to a lower (lower than top) managerial level. The aim of performance measurement and appraisal is than (Solomons, 1968):

- to guide central management in assessing the efficiency of an economic entity;
- to help central management in assessing the efficiency with which lower level management discharge their responsibilities in running an economic entity;
- to guide lower level management in making decisions with respect to the activities of their economic entity.

No single measure, like for example return on investment, solely determines the effectiveness of the control system. Nor does any individual criterium single handedly determine the effectiveness of the control system. The effectiveness of the control system is determined by the combined measures used and the specific criteria that determine the use that is made of the PMA-system. The combined system of measures and criteria will be refered to as the PMA-model.

3 Research domain

The PMA-model consists of two related parts: measuring performance and appraising performance. In measuring and appraising performance

we therefore encounter two problems:

- do we measure what we intend to measure; that is: do the measures describe economic reality accurately;
- does the model motivate individuals towards goal congruent behavior, given that the measures used and the criteria that determine the way that these measures are used impacts the behavior of the individuals whose performance is appraised.

This dualistic nature of PMA-models is expressed in figure 1.

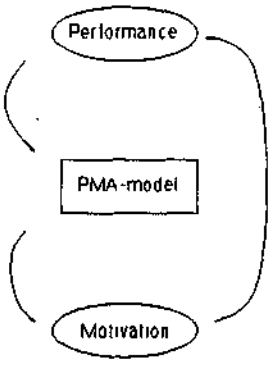

Figure 1: dualistic nature of PMA-models

Given the structure described in figure 1 we identify two aspects that influence the effectiveness of the PMA-model. The first aspect coincides with the upper half of the figure and determines the accurateness with which reality is measured. The second aspect — does the model motivates towards goal congruent behaviour — coincides with the lower half of the figure.

3.1 Measurement problems

We will consider the measurement model effective when the performance

of an organisation unit is measured accurate, objective and unequivocal.[1] The performance measurement model reflects the efficiency and effectiveness with which input (effort) is transformed into output (result). The accurateness of performance measurement concerns the level in which measured input-output relations correspond with actual input-output relations. Whether measured input-output relations correspond with actual input-output relations, and therefore whether measured performance corresponds with actual performance, is dependable upon several aspects. In this context, one has to think of the level in which the relation between input and output relations are measurable and predictable. It follows, that the objectiveness and unequivocalness of performance measurement is determined by the level in which individual performance is measurable and predictable. If, for example the performance of an individual organisation unit is influenced by the performance of another unit and the effect of this influence cannot be separated from the performance measured this will have a negative impact on the objectiveness and unequivocalness of the measurements.

In general, we will argue that input-output relations are measurable and predictable when there is a causal relation between input and output (i.e. to arrive at a certain amount of output one needs a known amount of input). If causality is absent, measurability and predictability problematic. If predictability of the input-output relation is missing, we have no standard against which to evaluate performance. In that case, measurement of the performance of an individual unit is not objective and might even be dysfunctional.

Aspects that influence the causality of input-output relations are manyfold. Examples are the interdependence among organisation units, shared resources, the complexity of the production program produced, and the turbulence of the environment. For example, the more turbulent the environment of an organisation is, the less accurate the measurement model will be. Today's organisation's will in general be confronted with

[1] An organisation unit can be an individual unit within the organisation as well as the organisation as a whole. Individual units can be activities as well as departments. This means that we will not make a distinction between economic performance measurement and management performance measurement.

a dynamic and in some instances even turbulent environment in which customers are ever more demanding and production programmes are complex and ever changing. In that case, the level of predictability of input-output relations will be low.

In summary, aspects that determine the possible discrepancy between measured performance and actual performance are the measurability of performance, the predictability performance, the interdependence among organisation units, and environmental uncertainty. Together these aspects determine the objectivity, and therefore the unequivocallity, with which the performance of indivudual units can be measured.

3.2 Appraisal problems

As far as it concerns the motivation towards goal congruent behaviour not only what is measured but also the way in which the PMA-model is used (that is the way that performance is measured and the consequences of the measurement in terms of the organisational reward system) determines whether the PMA-model inflicts desired behavior. The potential relationships comming from this latter part of the model has been described by Hopwood (1974; Hopwood describes this part of the model from the point of imperfect information; see figure 2).

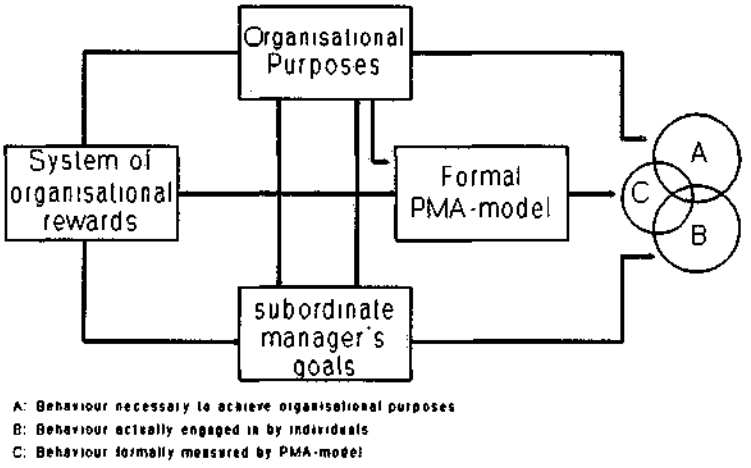

Figure 2 Hopwood's conceptual model

This may lead to a distinction between the formal (and therefore more

diagnostic) use of the performance measurement system and the more interactive use of performance appraisal following the measurement system. The way performance appraisal takes place will influence to a large extent the effectiveness of the PMA model. This distinction may therefore help to explain the effectiveness of the PMA model.
The interactive use of performance appraisal deals to a large extent with the behavioural aspects concerning the performance measurement system. The Hopwood-model distinguishes three types of behaviour (A, B, C, see figure 2). An effective PMA should inflict goal congruent behaviour of subordinate managers and thus unite the three types of behaviour in the Hopwood-model. As a consequence the behavioural aspects of a PMA model predominantly deal with the way in which organizational purposes are reflected in the goals of subordinate managers or the way subordinate managers are *motivated* to archieve organizational purposes (i.e. the lower part of figure 1). In this context, the following behavioural aspects are frequently cited in literature:

The feedback phenomenon
The behavioural influences of feedback is complex. For instance, Luckett & Eggleton (1991) state that the behavioural consequences of providing organizational members with feedback largely depends on credibility and power of feedback sources, frequency and type of feedback messages and individual differences.

The impact of company culture
Often it is stated that company culture affects control and performance appraisal. Birnberg & Snedgrass (1988) argue that because of differences in shared values and norms, bureaucratic procedures will differ among firms. Also, Bongen (1989) argues that the emergence, roles and consequences of a PMA model can be best understood in the context of the local social situations in which they operate.

Budget participation
Brownell & McInnes (1986) found that participation and managerial performance are significantly and positively linked. The study of Mia (1988) indicates that both managerial attitude and motivation to work moderate the effect of budget participation. However, ongoing research (Dunk1989)

into the impact of budget participation on the relationship between participation and managerial performance has failed to provide consistent results.

Environmental uncertainty

Environmental uncertainty also influences behavioural aspects concerning performance measurement and appraisal. Govindarajan (1984) found that organizations facing a higher environmental uncertainty will use a more subjective performance appraisal approach. Also, Simons (1990) found that performance depends on the business strategy i.e. the way the firm deals with environmental uncertainty.

Goal attainability

Hirst & Lowy (1990) show that goals and feedback interact to affect performance, while independently, goals and feedback have no effect on performance. It is often suggested that the perceived attainability of for instance budget goals will affect management behaviour and eventually business performance.

Manipulation of short term measures

Merchant (1990) reports that manipulation of short-term performance measures is a side effect of, often dysfunctional, PMA-systems.

Psychological biases

Hogarth (1980) and Hogarth and Makridakis (1981) mention some important psychogical biases, which can be inflicted by the PMA model or affect PMA. Some examples of these biases are: selective perception, conservatism, functional fixation, wishful thinking and illusion of control.

Reward system

The organizational reward system aims to influence the behaviour of subordinated managers (Hopwood-model, see figure 2). However, the role of performance incentives under conditions of information assymmetry and uncertainty is object of further study (Shields & Waller, 1988).

3.3 Effectiveness of PMA-models

As we argued in paragraph 3.1 and 3.2 the effectiveness of preformance

measurement and appraisal models is determined by many aspects which are to some extend interrelated (figure 3 summarizes the criteria mentioned in both previous paragraphs).[2] This causes a problem when one wants to study the criteria that determine the effectiveness in a specific setting such as performance evaluation in the Netherlands. There is no one measure that measures the effectiveness directly. In addition to this, given the lack of previous systematic research in performance evaluation in the Netherlands, we do not have a body of knowledge available which could be tested. It is not at all clear whether all the aspects mentioned before, do and if so to what extend have an impact on performance evaluation in the Netherlands. This poses a major problem: i.e. effectiveness of the system cannot be measured directly and the criteria determining the effectiveness are not known to us. Effectiveness will have to be measured indirectly, through surrogates. One way or another a preliminary study has to identify these criteria or aspects that determine the effectiveness of PMA-models in Dutch firms.

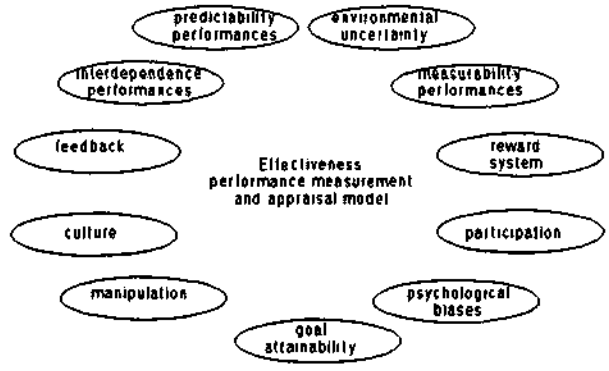

Figure 3: criteria affecting the effectiveness of PMA-models

A similar measurement problem can be found in an article by Kojima (1989). Kojima describes a study into the effectiveness of budgeting systems in Japanese firms. This study makes clear that the evaluation

[2] Given that these aspects are to some extend interrelated, it is necessary to confront the problem stipulated from an integrative approach, i.e. a model that contains all the criteria determining the effectiveness.

of any budgeting system must be made in relation to overall managerial performance. Managerial performance is affected not only by the budgeting decision-making structure, but also by various other factors. It is virtually impossible to separate the contribution of the budgeting decision-making structure from overall managerial performance. Therefore, overall managerial performance had to be included in the study. Based on these considerations, Kojima hypothesizes that the structure and behavior of an effective budgetting system shows 5 characterisitics if environmental variety (uncertainty of market evironment and complexity of production technology) increases. These five charateristics, that could be interpreted as criteria that determine the effectiveness of the budgettering system, are:

- plans are set from the viewpoint of shorter terms;
- performance feedback becomes more flexible;
- direction of initiation and approval is likely to be bottom-up in a greater number of cases;
- there is greater discretion in decision making;
- conflicts are resolved through a more democratic method.

Following the line of thinking present in Kojima's article and including our previous considerations (mentioned in paragraphes 3.1 and 3.2) we will describe a general organizational model for performance measurement and appraisal. This model, presumed to represent an effective PMA model is meant as a starting point for further explorative research. The model consists of five basic elements. Starting from the external and internal evironment and the organization's 'mission', input and output of organizational processes is measured to give managers essential information about the organization. This information is valued by the manager taking into account the internal and external developments and is used to adjust organizational processes. This managerial reaction (whether goal congruent or not) determines the effectivesness of the performance measurement and appraisal model used. Figure 4 gives an outline of this organizational model.

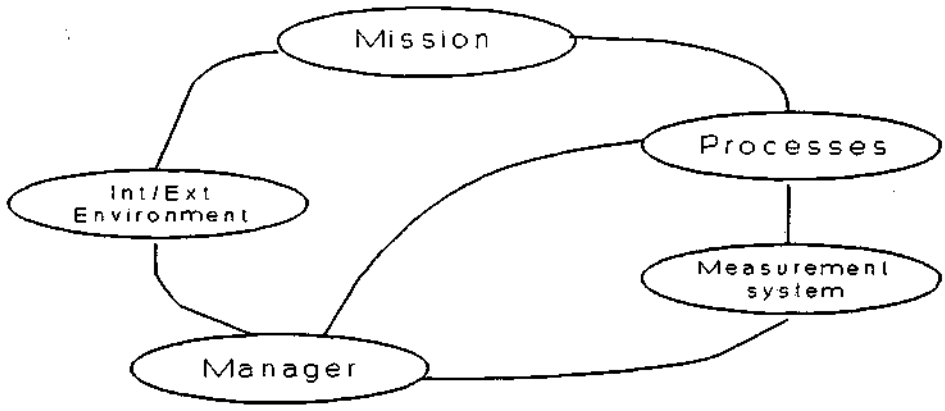

Figure 4: Organizational model

4 Research design

Given the research question and the problems in measuring and identifying the criteria that determine the effectiveness of performance evaluation in general, the study has to be explorative as well as confirmatory in nature. This can be clearified with the research cycle that is presented in figure 5.

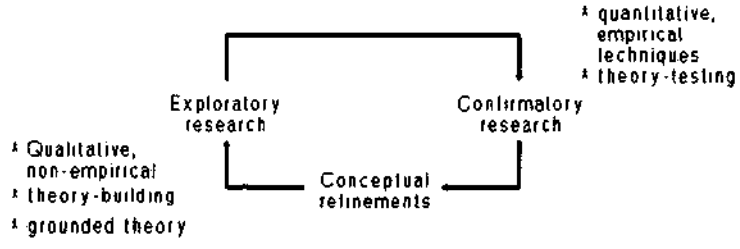

Figure 5: Scientific research cycle, by Mackenzie & House and McGrath; quoted in Straub, 1989.

Our research will be characterized by three seperate parts:

A. The aim of the first part of the study is to arrive at a first draft of a general PMA-model in Dutch firms. This phase is explorative in nature in the sense that, without any previous evidence about performance evaluation in the Netherlands, some sort of general performance measurement and appraisal model has to be extracted from practice. In order to arrive at a general model, a group of 80 experts from

practice will be confronted with the model described in paragraph 3.3 and asked to describe an optimal PMA-model for the company where they are presently working. These conceptual models will be analyzed and compared in order to distilate a first draft of a general PMA model characteristic for Dutch firms.

B. The second phase of the study is aimed at testing whether the general model as formulated in the first phase is representative for Dutch firms. In order to test the general model it has to be operationalized. This operationalization will take the form of a questionaire.

C. Finally, the third phase of the study aims at explaining the results of the questionaire survey. This includes several in depth interviews with respondents and possibly some in depth case studies.

The three phases correspond (to our knowlegde) very well the scientific research cycle of Mackenzie & House and McGrath, as shown in figure 6.

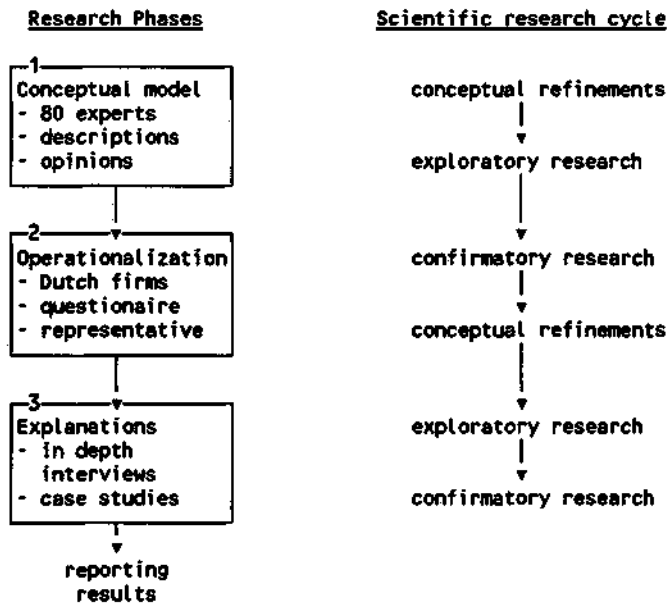

Figure 6: Research phases

5 *Summary*

Given the fact that increasing complexity in input-output relations causes problems in measuring performance and the interdependent nature of all sorts of behavioural aspects causes problems in appraising performance, we were forced to pay specific attention to the research design phase of our study.

This necessity is further intensified because of the apparant absence of systematic research on performance evaluation in the Netherlands. This causes our study to be somewhat explorative in nature, which is not satisfying if one considers the generalizability of explorative research in general. We therefore intend to follow up the explorative part of the study with a survey among a larger group of firms in order to test the validity of the outcomes of the explorative part. Specific attention will be given to the validity of the data gathering and analysing parts of the research as well as the validity of the instruments used and the constructs designed. This research methodology and the selection of measurement instruments will be discussed in a following paper.

Bibliography

Birnberg, J.G. & C. Snodgrass, Culture and control: a field study, *Accounting Organization and Society*, p.447-464, 1988.

Boungen, P.D., The emergence, roles and consequences of an accounting - industrial relations interaction, *Accounting Organization and Society*, p.203-234, 1989.

Dunk, A.S., Budget emphasis, budgetary participation and managerial performance: a note, *Accounting Organization and Society*, p.321-324, 1989

Eccles, The performance measurement manifesto, *Harvard Business Review*, January-February 1991, p.131-137.

Govindarajan, V, Appropriateness of accounting data in performance evaluation: an empirical examination of environmental uncertainty as an intervening variable, *Accounting Organization and Society*, p.125-135, 1984.

Hirst, M.K. & S.M. Lowy, The linear additive and interactive effects of budgetary goal difficulty and feedback on performance, *Accounting Organization and Society*, p.425-436, 1990.

Hopwood, A., *Accounting and human behaviour*, Prentice Hall, 1974.
Kaplan, R.S. & D.P. Norton, The balanced score card — measures that drive performance, *Harvard Business Review*, January-February 1992, p.71-79.
Kaplan, R.S. & D.P. Norton, Putting the balanced score card to work, *Harvard Business Review*, September-October 1993, p.134-147.
Kojima, H., The relation between environment and budgetting systems in Japanese corporations, in: Monden, Y. & M. Sakurai (eds), *Japanes management accounting*, productivity Press, 1989, p.475-486.
Luckett, P.F. & I.R.C. Eggleton, Feedback and management accounting: a review of research into behavioral consequences, *Accounting Organization and Society*, p.371-394, 1991
Merchant, K.A., The effects of financial controls on data manipulation and management myopia, *Accounting Organization and Society*, p.297-313, 1990.
Mia, L., Managerial attitude, motivation and the effectiveness of budget participation, *Accounting Organization and Society*, p.465-475, 1988.
Shields, M.D. & W.S. Waller, A behavioral study of accounting variables in performance - incentive contract, *Accounting Organization and Society*, p.581-594, 1988.
Simons, R., The role of management control systems in creating competitive advantage: new perspectives, *Accounting Organization and Society*, p.127-143, 1990.
Solomons, D., *Divisional performance measurement, measurement and control*, Irwin, 1968.
Straub, D.W., Validating instruments in MIS research, MIS quarterly, June 1989, p.147-169.